

Notice of Allowability

Application No.

09/987,633

Applicant(s)

KANEKO, TAROU

Examiner

Vincent P. Barth

Art Unit

2877

-- **Th MAILING DATE of this communication app ars on th cov r she t with th corr spondenc address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendment dated 4 June 2004.
2. ☒ The allowed claim(s) is/are 1-40.
3. ☒ The drawings filed on 15 November 2001 and 04 June 2004 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

DETAILED ACTION

Preliminary Comments

1. Applicant's Amendments dated 4 June 2004 have placed the Application in a condition for allowance as written. Accordingly, the following represents a reasoned statement for allowability.

Allowable Subject Matter

2. Claims 1-40 are allowable, since the prior art references, either considered alone or in combination, do not disclose or render obvious the limitations set forth therein.

3. Referring to Claim 1, the prior art references, either considered alone or in combination, do not disclose or render obvious the limitations whereby an array-waveguide grating (AWG) having a slab-waveguide comprises a plurality of input ports for inputting signals of different wavelengths, an output port disposed on the focus of the 0-th order diffraction beams in combination with the remaining limitations in the claim. Referring to Claim 2, the prior art references, either considered alone or in combination, do not disclose or render obvious the limitations whereby an AWG having a slab waveguide comprises a plurality of input ports for inputting signals of different wavelengths, an output port disposed on the focus of the 0-th order diffraction beams, a higher order diffraction beam reflecting means disposed on the focus position of the beams other than the 0-th order, in combination with the remaining limitations in the claim. Referring to Claim 3, the prior art references, either considered alone or in combination, do not disclose or render obvious the limitations whereby an AWG having a slab

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waveguide comprises a plurality of input ports for inputting signals of different wavelengths, an output port disposed on the focus of the 0-th order diffraction beams, a higher order diffraction beam reflecting means disposed on the focus position of the beams other than the 0-th order, in combination with the remaining limitations in the claim. Referring to Claims 4-8, the prior art references, either considered alone or in combination, do not disclose or render obvious the limitations whereby an optical transmission system comprises an input waveguide for inputting signals of different wavelengths, a channel waveguide with lengths increasing at a predetermined difference, an input slab waveguide interconnecting the channel array and the input waveguide, an output waveguide disposed on the focus of the 0-th order diffraction beams, a monitor signal separating means at the focus position of the beams other than the 0-th order, an output level detecting means for detecting the output levels of the individual wavelengths, in combination with the remaining limitations in the claim. Referring to Claim 9, the prior art references, either considered alone or in combination, do not disclose or render obvious the limitations whereby an AWG comprises an input waveguide for inputting signals of different wavelengths, a channel waveguide with lengths increasing at a predetermined difference, an input slab waveguide interconnecting the channel array and the input waveguide, an output waveguide disposed on the focus of the 0-th order diffraction beams, and an signal returning means for causing a signal converged on the focus position of the higher order diffraction beams to return to the focus position to the input side, in combination with the remaining limitations in the claim. Claim 10 is allowable based on its dependency upon the claim from which it is dependent. Referring to Claim 11, the prior art references, either considered alone or in combination, do not disclose or render obvious the limitations whereby an AWG comprises an input waveguide for inputting

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signals of different wavelengths, a channel waveguide with lengths increasing at a predetermined difference, an input slab waveguide interconnecting the channel array and the input waveguide, an output waveguide disposed on the focus of the 0-th order diffraction beams, a reflecting means disposed at the other terminal of the waveguide for reflecting the signal lead out from the monitor signal port, in combination with the remaining limitations in the claim. Referring to Claims 12-15, the prior art references, either considered alone or in combination, do not disclose or render obvious the limitations whereby an AWG comprises a substrate, an input waveguide for inputting signals of different wavelengths, a channel waveguide with lengths increasing at a predetermined difference, an input slab waveguide interconnecting the channel array and the input waveguide, an output waveguide disposed on the focus of the 0-th order diffraction beams, and a waveguide disposed on the substrate and connecting the monitor signal output port and monitor signal input port, in combination with the remaining limitations in the claim. Referring to Claims 16 and 17, the prior art references, either considered alone or in combination, do not disclose or render obvious the limitations whereby an AWG comprises an input waveguide for inputting signals of different wavelengths, a channel waveguide with lengths increasing at a predetermined difference, an input slab waveguide interconnecting the channel array and the input waveguide, an output waveguide disposed on the focus of the 0-th order diffraction beams, and a feedback waveguide/fiber for feeding back a multiplexed monitoring signal, in combination with the remaining limitations in the claim. Referring to Claim 18, the prior art references, either considered alone or in combination, do not disclose or render obvious the limitations whereby an AWG comprises an input waveguide for inputting signals of different wavelengths, a channel waveguide with lengths increasing at a predetermined difference, an

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input slab waveguide interconnecting the channel array and the input waveguide, an output waveguide disposed on the focus of the 0-th order diffraction beams, and an signal returning means for causing a signal converged on the focus position of the higher order diffraction beams to return to the focus position to the input side, in combination with the remaining limitations in the claim. Claims 19-27 are allowable based on their dependency upon the claim from which each is dependent. Referring to Claim 28-31, the prior art references, either considered alone or in combination, do not disclose or render obvious the limitations whereby an optical transmission system comprises a means for outputting signals of individual wavelengths as parallel signals, a node provided on the optical transmission path and including an arrayed waveguide grating, a demultiplexer constituted by an arrayed waveguide grating for separating the individual wavelengths, a slab waveguide disposed on the focus of the 0-th order diffraction beams, a monitor signal port at the focus position of the beams other than the 0-th order, in combination with the remaining limitations in the claim. Claims 32 and 33 are allowable based on their dependency upon the claim from which each is dependent, namely, Claim 1. Claims 34-39 are allowable based on their dependency upon the claim from which each is dependent, namely, Claim 2. Referring to Claim 40, the prior art references, either considered alone or in combination, do not disclose or render obvious the limitations whereby an array-waveguide grating (AWG) having a slab-waveguide comprises an input slab interconnecting a plurality of input waveguides, an output port disposed on the focus of the 0-th order diffraction beams in combination with the remaining limitations in the claim.

Comments

4. The amendments to Figures 25 and 26 submitted therewith, and merely identifying the illustrations as prior art, have been accepted. Moreover, Applicant's amendments to the Specification replacing the term "peculiar" with the term "individual", as well as the correction to a minor typographical error, have been accepted. Neither the amendments to the Drawings nor the amendments to the Specification introduces new matter, since the subject matter had previously been disclosed.

5. Applicant has amended Claims 4 and 5 to replace the term "peculiar" with the term "individual", as had been suggested by the Examiner in the previous Office Action. Moreover, Applicant has amended Claim 15 to replace the term "a predetermined position" with "an end face" of the substrate, which sufficiently clarifies the claim language, and removes the previously noted indefiniteness. Accordingly, all of the rejections pursuant §112 set forth in the previous Office Action are withdrawn.

6. The Examiner has considered Applicant's arguments as set forth in the Amendment dated 4 June 2004 in the section entitled Remarks. In particular, Applicant argued in the Remarks (pg. 30, first full para.) that the outputs in the Okamoto and Nakajima references are located in several positions, which deviate from the focus point of the 0-th order diffraction beams. The Examiner finds such argument persuasive, and accordingly the rejection pursuant to §103 combining the Okamoto reference and the Nakajima reference has been withdrawn.

CONCLUSION

7. Applicant's Claims 1-40 are allowed based on the reasons set forth above.
8. Any inquiries concerning this communication from the Examiner should be directed to Vincent P. Barth, whose telephone number is 571-272-2410, and who may be ordinarily reached from 9:00 a.m. to 5:30 p.m., Monday through Friday. The official fax number for communications to the group is 703-872-9306.
9. If attempts to reach the Examiner prove unsuccessful, the Examiner's supervisor is Frank G. Font, who may be reached at 571-272-2415.
10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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